

GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 666**  
ANSWERED ON 08/02/2024

**India's land mass prone to earthquakes**

**666. Shri K.R. Suresh Reddy:**

Will the Minister of **Earth Sciences** be pleased to state:

- (a) whether Government has taken cognizance of the fact that as much as 59 per cent of India's land mass is prone to earthquakes of different intensities; and
- (b) if so, the details of the initiatives that are proposed to be taken by Government to ensure that all the four seismic zones of the country are in alert mode?

**ANSWER**

THE MINISTER OF EARTH SCIENCES  
(SHRI KIREN RIJJU)

- (a) Yes Sir. The whole country is categorized into four seismic zones V, IV, III and II by the Bureau of Indian Standards (BIS), with about 59% of its land susceptible to varying earthquake intensities. Zone V represents the most seismically active region, while Zone II is the least. Specifically, Zone V covers 11% of the area, Zone IV 18%, Zone III 30% and the remaining in Zone II. The Modified Mercalli (MM) intensity, which measures the impact of the earthquakes on the ground, broadly associated with various zones, is given below:

<u>Seismic Zone</u>	<u>Intensity on MM scale</u>
II (Low intensity zone)	VI (or less)
III (Moderate intensity zone)	VII
IV (Severe intensity zone)	VIII
V (Very severe intensity zone)	IX (and above)

- (b) National Centre for Seismology (NCS) under Ministry of Earth Sciences is the nodal agency of Government of India (GoI), for monitoring earthquakes in and around the country. For this purpose, NCS maintains a National Seismological Network consisting of 159 observatories spread across the country. Soon after the occurrence of earthquake within and neighbouring parts of the country, NCS swiftly disseminates information through various digital platforms to prompt appropriate mitigation actions. Plans are underway to upgrade this network to improve response times and detection capabilities with an additional 100 observatories covering all areas of seismic zones of the country.

Further, NCS's ongoing seismic microzonation studies covering all seismic zones of the country, which have been completed for multiple cities like Jabalpur, Guwahati, Bangalore, Sikkim, Ahmedabad, Gandhidham-Kandla, Delhi and Kolkata. This microzonation work is actively in progress for 12 more cities namely Coimbatore, Chennai, Bhubaneswar, Mangalore, Agra, Amritsar, Lucknow, Kanpur, Varanasi, Patna, Dhanbad and Meerut.

In addition to above, Bureau of Indian Standards (BIS) has provided comprehensive building codes towards earthquake-resistant construction, with a specific focus on the diverse seismic zones of the country. Also, National Disaster Management Authority (NDMA) is mandated to lay down the policies, plans and guidelines for Disaster Management; has published detailed Guidelines on Earthquakes, aiming to support the nation's preparedness and response strategies for seismic events. These guidelines are supported by regular training programs and drills organized by the NDMA, involving both officials and the public, especially in high-risk seismic zoning areas, to ensure heightened community resilience and an efficient response mechanism during earthquakes.

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